

CLAIMS

1. An oxygen concentrating apparatus, comprising:
 - an oxygen concentrating unit, including an adsorption column filed with an adsorbent material which selectively adsorbs nitrogen gas more than oxygen gas;
 - a compressor for supplying compressed air to the oxygen concentrating unit;
 - a compressor housing for accommodating the compressor, the compressor housing including a plurality of air inlet ports for introducing the air into the compressor housing and an air outlet opening for discharging the air from the compressor housing;
 - a cooling fan mounted on the compressor housing at the air outlet opening for drawing the air from the compressor housing; and
 - the air inlet ports being disposed adjacent the side wall of the compressor to direct the air flow induced by the cooling fan perpendicularly to the side wall of the compressor;
 - characterized in that the capacity of the cooling fan and the diameter of the air inlet ports are selected to ensure the velocity of the air flow through the air inlet ports is equal to or lower than 15m/sec.
2. An oxygen concentrating apparatus according to claim 1, wherein the capacity of the cooling fan and the diameter of the air inlet ports are selected to ensure that the velocity of the air flow through the air inlet ports relative to the electric power consumption of the compressor is equal to or higher than 0.05m/secW.
3. An oxygen concentrating apparatus according to claim 2, wherein the capacity of the cooling fan and the diameter of the air inlet ports are selected to ensure the velocity of the air flow through the air inlet ports relative to the electric power consumption of the compressor is equal to or lower than 0.1m/secW.
4. An oxygen concentrating apparatus according to any one of the previous claims, wherein the capacity of

the cooling fan is selected to ensure the temperature differences between the air outside of the compressor housing and the outer surface of the compressor is equal to or lower than 30°C.

5 5. An oxygen concentrating apparatus according to claim 1, wherein the compressor includes a cylinder within which a piston is slidably disposed, a crank shaft, a connecting rod for connecting the piston to the crank shaft, a cylinder head attached to the end of the
10 cylinder and a driving motor, the output shaft of which is connected to the crank shaft so that the rotation of output shaft of the driving motor is transformed to the reciprocations of the pistons; and

 the air inlet ports are disposed around
15 the cylinder to direct the air, induced by the cooling fan, through the air inlet ports perpendicularly to the outer surfaces of the cylinder adjacent the ends thereof where the temperature of the air in the cylinder is increased by the compression of the air.